IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A memory medium that stores program instructions implementing a plurality of function blocks for use in specifying and performing a signal analysis function utilizing a plurality of instruments, wherein the plurality of instruments comprises two or more virtual instruments (VIs), wherein each function block comprises:

a function block icon ~~operable~~ configured to be displayed in a graphical user interface (GUI) of a signal analysis function development environment, wherein the function block icon visually indicates a respective signal operation; and

a set of program instructions associated with the function icon, wherein the set of program instructions are executable to perform the respective signal operation;

wherein each function block is selectable from the plurality of function blocks by a user for inclusion in a set of function blocks, and wherein each function block operates to perform the respective signal operation continuously upon being selected without stopping execution of the set of function blocks;

wherein each function block is ~~operable~~ configured to provide a respective output based on the respective signal operation, wherein the respective output is ~~operable~~ configured to be displayed in the GUI, provided as input to one or more other ones of the set of function blocks, or exported to an external device, wherein upon selection of a function block, the program instructions are further executable to:

automatically analyze the set of function blocks to determine a function block in the set of function blocks configured to provide output useable by the selected function block as input; and

automatically configure and display the determined function block and the selected function block to provide the determined function block's output as input to the selected function block; and

wherein the set of function blocks is executable to perform the signal analysis function under the signal analysis function development environment using one or more of the plurality of instruments.

2. (Currently Amended) The memory medium of claim 1, ~~wherein the set of function blocks are displayed in a diagram~~, wherein the diagram comprises one or more of:

a linear sequence;

a data flow diagram;

a tree diagram; or

a dependency diagram.

3. (Currently Amended) The memory medium of claim [[2]] 1,

wherein the set of function blocks is displayed in a diagram;

wherein the diagram substantially visually represents I/O relationships between the function blocks; and

wherein, when the I/O relationships between the function blocks change, the diagram is automatically updated in accordance with the changed I/O relationships between the function blocks.

4. (Currently Amended) The memory medium of claim [[2]] 1,

wherein the set of function blocks is displayed in a diagram; and

wherein the diagram comprises one or more control structures, wherein the one or more control structures control execution of the set of function blocks; and wherein the one or more control structures comprises one or more of:

conditional branching; or

looping.

5. (Currently Amended) The memory medium of claim [[2]] 1,

wherein the set of function blocks is displayed in a diagram;

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wherein the diagram comprises information specifying the respective signal operations of the set of function blocks, and wherein the information is executable to perform the signal analysis function under the signal analysis function development environment.

6. (Previously Presented) The memory medium of claim 5, wherein the information specifying the respective signal operations of the set of function blocks is useable to generate a program, and wherein the program is executable to perform the signal analysis function independently of the signal analysis function development environment.

7. (Currently Amended) The memory medium of claim 1, wherein each of at least a subset of the plurality of function blocks is ~~operable~~ configured to:

receive a signal from a signal source;

perform the respective signal operation on the signal; and

output a result of the respective signal operation for one or more of:

display in the GUI;

storage;

input to another one of the plurality of function blocks; or

export to an external device.

8. (Currently Amended) The memory medium of claim 1, wherein the set of program instructions are further executable to:

receive user input selecting the function block icon;

display a configuration GUI for the function block; and

receive user input to the configuration GUI setting one or more parameters of the function block, thereby configuring the function block, wherein the configured function block is ~~operable~~ configured to perform the signal operation in accordance with the one or more set parameters.

9. (Currently Amended) The memory medium of claim 8, wherein each function block has a default configuration, wherein, prior to said configuring the function block, the function block is ~~operable~~ configured to perform the signal operation in accordance with the default configuration.

10. (Previously Presented) The memory medium of claim 1, wherein at least one of the plurality of function blocks comprises a user-defined function block, and wherein the set of program instructions of the user-defined function block are executable to perform a user-defined signal operation.

11. (Previously Presented) The memory medium of claim 10, wherein the set of program instructions of the user-defined function block comprises a pre-defined program.

12. (Currently Amended) The memory medium of claim 1,
wherein each function block comprises an input and an output, wherein the input is ~~operable~~ configured to receive signals from one or more of:
        an external signal source;
        a file; or
        another function block; and
wherein the output is ~~operable~~ configured to send resultant signals to one or more of:
        a display of the GUI;
        an external device;
        a file; or
        another, different, function block.

13. (Currently Amended) The memory medium of claim 1, wherein each function block is ~~operable~~ configured to display respective indicators for one or both of:
        one or more input signals for the function block; and

one or more output signals for the function block,

wherein the respective indicators comprise text or a graphical image indicating a respective signal.

14. (Previously Presented) The memory medium of claim 13, wherein each indicator of the function block is selectable by a user to associate the respective signal with:

a display of the GUI, wherein in response to being associated with the display, the respective signal is displayed in the display of the GUI; or

a different function block of the set of function blocks, wherein in response to being associated with the different function block, the set of program instructions of the different function block performs the respective signal operation on the respective signal.

15. (Currently Amended) The memory medium of claim 14, wherein, in being selectable by a user, each indicator is ~~operable~~ configured to be:

dragged and dropped onto said display of the GUI, resulting in display of the respective signal on the display of the GUI; or

dragged and dropped onto the different function block, thereby configuring the different function block to receive the respective signal as input and to perform the respective signal operation on the respective signal.

16. (Currently Amended) The memory medium of claim 14, wherein each function block is ~~operable~~ configured to receive user input indicating one or more input signals, and wherein the function block is ~~operable~~ configured to perform the signal operation on the indicated one or more signals in response to said user input indicating one or more input signals.

17. (Previously Presented) The memory medium of claim 16, wherein said user input indicating one or more input signals comprises:

the user dragging and dropping one or more signal icons onto the function block.

18. (Currently Amended) The memory medium of claim 16,

wherein the display of the GUI comprises a graph ~~operable~~ <u>configured</u> to display one or more signals; and

wherein said user input indicating one or more input signals comprises:

the user selecting at least one signal in the GUI display; and

the user dragging and dropping a corresponding at least one signal icon from the graph onto the function block, wherein the at least one signal icon represents the at least one signal in the GUI display.

19. (Previously Presented) The memory medium of claim 1, wherein the two or more virtual instruments comprise at least one of:

a DAQ (data acquisition) device;

a digitizer;

an arbitrary waveform generator;

a digital I/O device; and

a digital multimeter.

20. (Currently Amended) The memory medium of claim 1, wherein one or more of the two or more VIs comprises a hardware device, and wherein the hardware device comprises at least one of:

a DAQ (data acquisition) board;

a digitizer board;

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an arbitrary waveform generator board;

a digital I/O board; ~~and~~ or

a digital multimeter board.

21. (Previously Presented) The memory medium of claim 1, wherein the plurality of instruments comprises at least one standalone hardware device.

22. (Currently Amended) A system, comprising:

a processor, and

a memory medium coupled to the processor, wherein the memory medium stores program instructions implementing a plurality of function blocks for use in specifying and performing a signal analysis function utilizing a plurality of instruments, wherein the plurality of instruments comprises two or more virtual instruments (VIs), and wherein each function block comprises:

a function block icon ~~operable~~ configured to be displayed in a graphical user interface (GUI) of a signal analysis function development environment, wherein the function block icon visually indicates a respective signal operation; and

a set of program instructions associated with the function icon, wherein the set of program instructions are executable to perform the respective signal operation;

wherein each function block is selectable from the plurality of function blocks by a user for inclusion in a set of function blocks, and wherein each function block operates to perform the respective signal operation continuously upon being selected without stopping execution of the set of function blocks;

wherein each function block is ~~operable~~ configured to provide a respective output based on the respective signal operation, wherein the respective output is ~~operable~~ configured to be displayed in the GUI, provided as input to one or more other ones of the set of function blocks, or exported to an external device;

wherein upon selection of a function block, the program instructions are further executable to:

automatically analyze the set of function blocks to determine a function block in the set of function blocks configured to provide output useable by the selected function block as input; and

automatically configure and display the determined function block and the selected function block to provide the determined function block's output as input to the selected function block; and

wherein the set of function blocks is executable to perform the signal analysis function under the signal analysis function development environment using one or more of the plurality of instruments.

23. (Currently Amended) A computer-implemented method for specifying and performing a signal analysis function utilizing a plurality of instruments, wherein the plurality of instruments comprises two or more virtual instruments (VIs), the method comprising utilizing a computer to perform:

receiving first user input selecting a function block from a plurality of function blocks for inclusion in a set of function blocks, wherein the function block corresponds to a respective signal operation, and wherein the function block comprises a function block icon that visually indicates the respective signal operation and is ~~operable~~ configured to be displayed in a graphical user interface (GUI) of a signal analysis function development environment, and a set of program instructions associated with the function icon, wherein the set of program instructions are executable to perform the respective signal operation using at least one of the two or more VIs;

in response to said selecting the function block:

automatically analyzing the set of function blocks to determine a function block in the set of function blocks configured to provide output useable by the selected function block as input; and

automatically configuring and displaying the determined function block and the selected function block to provide the determined function block's output as input to the selected function block;

the function block performing the respective signal operation substantially continuously upon being selected without stopping execution of the set of function blocks, thereby performing at least a portion of the signal analysis function; and

the function block providing a respective output based on the respective signal operation, wherein the respective output is provided for display in the GUI, provided as input to one or more other ones of the set of function blocks, or exported to an external device;

wherein the set of function blocks is executable to perform the signal analysis function under the signal analysis function development environment using one or more of the plurality of instruments.

24. (Original) The method of claim 23, wherein the program instructions are further executable to implement:

receiving second user input to the function block invoking display of a configuration GUI for the function block;

displaying the configuration GUI in response to said receiving second user input;

receiving third user input to the configuration GUI specifying values of one or more parameters of the function block, thereby configuring the function block; and

the function block performing the signal operation in accordance with the one or more parameters.